

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1.-16. (Cancelled)

17. (Currently Amended) A print robot for large format three-dimensional printing on a fixed surface, comprising an inkjet printing assembly, means for displacing and orientating this printing assembly along several axes, at least one control unit controlling these means and a drying device for the ink sprayed onto said surface, wherein said robot is a print robot with five motorized axes and wherein the displacement and orientation means comprise:

- a carrier with three degrees of freedom in translation, which ensures positioning of the printing assembly allowing its horizontal, vertical and depth translation, wherein the carrier comprises:

-- a first mobile carriage provided with a driving system moving on two horizontal rails,

-- a beam fixed perpendicular to the first mobile carriage, a second mobile carriage provided with a driving system moving on two vertical rails mounted o this beam, and

-- a slide fixed perpendicular to the second mobile carriage, a mobile platform moving along this slide; and

- a wrist with two degrees of freedom in rotation which supports and ensures the orientation of the printing assembly allowing its rotations (Rx, Ry) along two perpendicular axes.

18. (Canceled)

19. (Previously Presented) A robot as claimed in claim 17, wherein the wrist comprises two identical systems screws/rods/cranks each linked to a mobile carriage.

20. (Previously Presented) A robot as claimed in claim 19, wherein the wrist supports the ink drying device.

21. (Previously Presented) A robot as claimed in claim 20, comprising five servomotors respectively associated with the five axes of this robot.

22. (Previously Presented) A robot as claimed in claim 21, which as input comprises:

- several optical sensors to measure the distance between the printing assembly and the surface to be printed,
- five encoders for the motor axes to determine the displacement of the servomotors,
- two end-of-travel sensors and one start point sensor respectively associated with each axis of the robot.

23. (Previously Presented) A robot as claimed in claim 22, comprising a real-time control device which comprises:

- a central unit module,
- at least one module to control the axes,
- a digital input-output module.

24. (Previously Presented) A robot as claimed in claim 23, comprising a general control device which includes:

- a real-time control module,
- a sensor signal interfacing/relay and packaging module,
- a supply/instrumentation module,
- a brake feed module,
- a safety management module,
- a ventilation assembly,
- five digital motor speed controllers.

25. (Previously Presented) A robot as claimed in claim 24, comprising:

- a first computer terminal dedicated to control of the movements of this robot,
- a second computer terminal dedicated to monitoring the robot, including:
 - coordination between displacement of the robot and the printing operation,
 - processing the digital image to be printed,
 - man-machine interfacing.

26. (Previously Presented) A robot as claimed in claim 17, wherein the printing assembly comprises at least one printing block provided with several printing heads using inks of different colors.

27. (Previously Presented) A robot as claimed in claim 26, wherein each printing block comprises four printheads respectively using yellow, cyan, magenta and black inks.

28. (Previously Presented) A robot as claimed in claim 26, wherein the inks are ultraviolet drying inks.

29. (Previously Presented) A printing process, which after a prior step to digitize the image and divide it into strips of determined width, comprises the following steps:

- positioning a medium with respect to at least one robot as claimed in claim 17,
- initial setting of said at least one robot and positioning its/their head(s) with respect to the surface of the medium, at the point where printing of the image is to start,
- printing the image on said surface with successive printing of the different vertical strips forming the image,
- return to a rest configuration.

30. (Previously Presented) A process as claimed in claim 29, which comprises a prior surface preparation step so as to make it clean and uniformly white.

31. (Previously Presented) A process as claimed in claim 29, wherein printing starts at the lower left-hand corner of the surface.

32. (Previously Presented) A process as claimed in claim 29, wherein the width of the vertical strips is approximately 7 cm.

33. (New) A print robot for large format three-dimensional printing on a fixed surface, comprising an inkjet printing assembly, means for displacing and orientating this printing assembly along several axes, at least one control unit controlling these means and a drying device for the ink sprayed onto said surface, wherein said robot is a print robot with five motorized axes and wherein the displacement and orientation means comprise:

a carrier with three degrees of freedom in translation, which ensures positioning of the printing assembly allowing its horizontal, vertical and depth translation,

a wrist with two degrees of freedom in rotation which supports and ensures the orientation of the printing assembly allowing its rotations (Rx, Ry) along two perpendicular axes,

wherein the wrist comprises two identical systems screws/rods/cranks each linked to a mobile carriage,

wherein the wrist supports the ink drying device,
said robot comprising five servomotors respectively associated with the five axes of
this robot,
said robot comprising as input:

- several optical sensors to measure the distance between the printing
assembly and the surface to be printed,
- five encoders for the motor axes to determine the displacement of the
servomotors,
- two end-of-travel sensors and one start point sensor respectively associated
with each axis of the robot.

34. (New) A robot as claimed in claim 33, comprising a real-time control
device which comprises:

- a central unit module,
- at least one module to control the axes,
- a digital input-output module.

35. (New) A robot as claimed in claim 34, comprising a general control device
which includes:

- a real-time control module,
- a sensor signal interfacing/relay and packaging module,
- a supply/instrumentation module,
- a brake feed module,
- a safety management module,

a ventilation assembly,
five digital motor speed controllers.

36. (New) A robot as claimed in claim 35, comprising:
a first computer terminal dedicated to control of the movements of this robot,
a second computer terminal dedicated to monitoring the robot, including:
coordination between displacement of the robot and the printing operation,
processing the digital image to be printed,
man-machine interfacing.